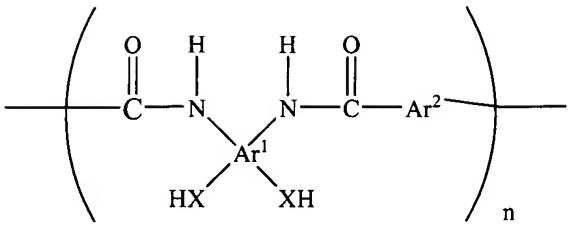
REMARKS

Applicants have amended claims 1, 2, 4, 6, 8, 10, 12, and 14. Support for the amended claims can be found in the specification at page 12, line 29 to page 13, line 11; page 17, lines 23-29; page 20, lines 24-29; page 20, lines 24-29; page 21, lines 1-10; and page 25, lines 20-24. Applicants have also added new claims 17-28. Support for the new claims appear in the specification at page 12, line 29 to page 13, line 11; page 14, line 35 to page 15, line 8; and page 19, lines 4-9. No new matter has been introduced by the above amendments. As the amendments may require new consideration by the Examiner, Applicants file herewith a request for continued examination.

Upon entry of the amendments, claims 1-28 will be currently pending and under examination. Reconsideration of this application is respectfully requested in view of the remarks below.

The Examiner rejected claims 1-16 again as obvious over WO 93/06191, or further in view of EP 0990673. See the Office Action, page 2, lines 6-7. The Examiner stated that the rejection is maintained on the grounds that the limitation "the film has strong anisotropy" of claim 1 does not determine the strength of the anisotropy.

Claim 1 has been amended to include the limitation "along a direction of a magnetic or electric field applied to the polybenzazole precursor." Amended claim 1 covers a film formed of a polybenzazole precursor, in which the film is produced by solidifying the polybenzazole precursor oriented along a direction of a magnetic or electric field applied to the polybenzazole precursor. The polybenzazole precursor having a repeating unit shown by the following chemical formula (1) or (2), where X is selected from a sulfur atom, an oxygen atom, and an imino group; Ar^1 and Ar^2 are selected from aromatic hydrocarbon groups; and n is an integer of 10 to 500.



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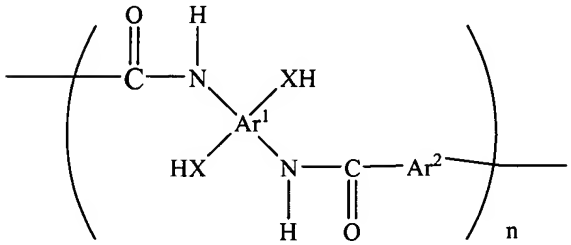

... (2)

WO 93/06191 teaches a liquid crystalline polymer (LCP) having an in-plane biaxial orientation skewed out of the plane of orientation, by sequentially (i) treating a melt of the LCP with simultaneous biaxial shearing forces to produce a film or tube having a controlled in-plane biaxial orientation, (ii) treating the film or tube obtained in step (i) with cross-directional strains, and (iii) subjecting the film or tube obtained in step (ii) to an electric or magnetic field.

This reference also teaches a LCP having an in-plane biaxial orientation skewed out of the plane of orientation, by sequentially (i) simultaneously treating a melt comprising the LCP with simultaneous biaxial shearing forces to produce a film or tube with at least three microscale structural orientations, and (ii) treating the film or tube obtained in step (i) with cross-directional strains to impart additional microscale organization to the film or tube. See page 11, line 9 to page 12, line18.

WO 93/06191 further describes that the controlled in-plane biaxial orientation of the LCP may be provided by any method which provides the necessary control to achieve the desired orientation, e.g., the extrusion processes and that the orientation into the z-direction may be achieved by any method which enables the necessary control, e.g., a magnetic or an electric field. See page 16, lines 15-21. More specifically, it teaches skewing the biaxial orientation to reduce the dependence of the in-plane coefficient of thermal expansion (CTE) of the LCP components

fabricated from biaxially oriented LCP components on an LCP composition. In particular, the reference describes that the controlled biaxial orientation is skewed to about 2 to 88 degrees of normal to the plane of biaxial orientation. See page 21, lines 1-3.

WO 93/06191 does not teach or suggest a film which is produced by solidifying a polybenzazole precursor along a direction of a magnetic or electric field applied to it as required by claim 1. As indicated in the previous paragraph, it describes applying an electric or magnetic field either simultaneously with a biaxial shearing force or after applying a biaxial shearing force. Indeed, WO 93/06191 focuses on producing a film or tube having an in-plane biaxial orientation skewed out of the plane of orientation to reduce dependence of CTE on LCP composition. Claim 1 recites only applying an electric or magnetic field; it does not recite applying a shearing force, to orient polybenzazole precursors parallel to the applied field. Further, WO93/06191 clearly discloses applying a shearing force to produce at least three microscale axial orientations. Indeed, applying only an electric or magnetic field as required by claim 1 would lead to a unified orientation, not at least three different orientations. Thus, WO 93/06191 does not render claim 1 obvious.

Similar to the amendment to claim 1, Applicants have also amended claims 4, 6, 10, 12, and 14 to include the limitation "along a direction of a magnetic or electric field applied to the polybenzazole" or "in such a manner that the polybenzazole precursor in the spread liquid is oriented along a direction of the magnetic or electric field." Thus, these claims are non-obvious over WO 93/06191 for the same reasons set forth above relating to amended claim 1. Claims 2, 3, 5, 7-9, 11, 13, 15, 16-28 all depend directly or indirectly from claims 1, 4, 6, 10, 12 and 14. They are also not rendered obvious by WO 93/06191 for at least the same reasons.

EP 0990673 discloses the formulae of polybenzazole and a polybenzazole precursor, but does not disclose or even suggest controlling the orientation of polybenzazole or the polybenzazole precursor using an electric or magnetic field. Therefore, a combination of WO 93/06191 and EP 0990673 also does not render obvious claims 1, 4, 6, 10, 12 and 14, or claims 2, 3, 5, 7-9, 11, 13, 15, 16-28 dependent therefrom.

CONCLUSION

Applicants respectfully submit that the grounds for rejection asserted by the Examiner have been overcome, and that claims 1-28 as pending define patentable subject matter.

Enclosed is a $400 check for excess claim fee and a $1020 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney's Docket No 14157-011001.

Respectfully submitted,

Date: 11-23-05

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